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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/885,642      06/20/01      KELS0E

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EXAMINER

IM52/1010

GREGORY M. FRIEDLANDER & ASSOCIATES, P.C  
11 SOUTH FLORIDA STREET  
MOBILE AL 36606-1934

CAMERON, E  
ART UNIT

PAPER NUMBER

1762  
DATE MAILED:

10/10/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/885,642

Applicant(s)

KELSOE, DARRELL W.

Examiner

Erma C. Cameron

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 3-16, 21, 23-24 and 29-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 17-20, 22, 25-28 and 34-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-45 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

*Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-32 and 34-45, drawn to a method of treating wood, classified in class 427, subclass 393.
  - II. Claim 33, drawn to an article, classified in class 428, subclass 541.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions of Group I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product could be made by a materially different process, such as vapor deposition of the treating material
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

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5. This application contains claims directed to the following patentably distinct species of the claimed invention:

- a)  $RX_aX_b3$  (claim 2, 34-45)
- b)  $R3X_aX_b$  (claim 3)
- c)  $R2SiX2$  (claim 4)
- d)  $R3SiX$  (claim 5)
- e)  $TiR4$  (claim 6)
- f)  $RSiX3$  (claim 7)
- g)  $X2O3$  (claim 8)
- h)  $BX3$  (claim 10)
- i) silicon compound (claim 11)
- j) metal compound (claim 12)
- k) silicate with C-Si-halogen bonds (claims 13, 16, 29 and 32)
- l) TMB and MTS (claim 14, 23 and 45)
- m) borax, silicate, metal or metalloid (claim 15)
- n) reactive silicate (claim 21)
- o) C-Si-halogen and  $BX3$  (claim 24)
- p) one of the compounds of claim 30 or claim 31
- q) metal acid (claim 9)

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, Claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the

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limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

6. During a telephone conversation with Gregory Friedlander on October 2, 2001 a provisional election was made WITH traverse to prosecute the invention of Group I and species a), claims 1-2, 17-20, 22, 25-28 and 34-45. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-16, 21, 23-24, 29-33 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

#### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 1-2, 17-20, 22, 25-28 and 34-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claim 1: claim 1 has only one step, and yet the plural steps is used.

b) Claim 2 and 42: it is not clear how R can be a compound, which implies no open valences.

c) Claim 2 and 42: what halogen has seven valences?

d) Claim 2: it is not clear what is meant by in which the aromatic ring is replaced with a polycyclic aromatic ring.

e) Claim 17: it is not clear if the additive is the same or different from the molecule of Claim 1.

f) Claim 17: specific characteristics is vague and indefinite in that it is not clear what characteristics are meant, and whether they are the same or different from those listed as (a) to (f).

g) Claim 17: (B) ends incorrectly with a period.

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- h) Claim 17, (B): changing the chemical structure of the cellulose is vague and indefinite, in that the nature of the change is not describe, nor the method of exacting that change.
- i) Claim 18: there is no antecedent basis for the wood cellulose polymer.
- j) Claim 18: it is not clear what is meant by reforming the wood cellulose polymer. Reforming in a chemical or physical way?
- k) Claim 20 and 25: appropriate concentration is vague and indefinite, in that what is appropriate is not defined.
- l) Claim 20 and 22: it is not clear what makes up the treatment content. Is this the atoms mentioned in Claim 20 or something else?
- m) Claim 26: there is no antecedent basis for chemicals.
- n) Claim 28 and 38: it is not clear what is meant by molecular donors.
- o) Claim 28 and 38: it is not clear how the atoms could be transported into the wood before the solvent. What carrier would be used?
- p) Claim 33-37: there is no antecedent basis for the reaction.

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- q) Claim 43: should be dependent on 39 so that there is proper antecedent basis for carbon alkyloxy.
- r) Claim 44: it is not clear what is meant by free boron compounds.
- s) Claim 44: it appears from the use of the plural that more than one boron compound needs to be added.
- t) Claim 44: it is not clear what the boron compound is added to.
- u) Claim 44: under .1% to 5% is not clear in meaning. Is from .1% to 5% actually meant?
- v) Claim 45: type is vague and indefinite.
- w) Claim 45: it is not clear what is meant by discussed above. Boron compounds are not claimed in Claim 38.
- x) Claim 45: may be used is vague and indefinite in that it is not clear if the reagent is actually used or not.



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y) Claim 45: it is not clear what a boron matrix is. Furthermore, a Figure cannot be used as part of a claim if the Figure shows critical matter.

z) Claims 1 and elsewhere: the capitalization of Trivalent and other words is inappropriate and confusing. See in particular Claim 17. In addition, a consistent spelling of pentavalent should be adopted.

aa) Claim 1: it is not clear if or how the cellulose of the wood is polymerized. The Figures show cellulose as being a polymeric material to begin with.

bb) Claim 40 and 44: the basis for the concentrations should be defined – weight, etc?

### *Specification*

9. The disclosure is objected to because of the following informalities:

a) 10:17 – partial sentence

b) 18:19 – close ).

Appropriate correction is required.

***Drawings***

10. The drawings are objected to under 37 CFR 1.83(a). It is not clear what is Figure 6, 6a and 6b. In addition, the Brief Description of the Drawings does not provide a good explanation for 6, 6a and 6b.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-2 and 17-18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Saka et al, Wood Sci. Technol., 31(6), pp 457-466, 1997.

Saka teaches application of MTMOS and HFOETMOS into moisture conditioned wood, to give a fire resistant wood, which resists leaching of the agents (see Abstract).

13. Claims 1-2, 17-18, 25-28, 34-39, 41 and 43-45 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Saka et al (5652026).

'026 teaches impregnating moisture conditioned (4:62) wood, using vacuum or pressure (4:61-68), with a methyltrialkoxysilane, boric acid (4:29-68), acid or base catalysts or a catalyst that can produce an acid such as metal organic acid salt (5:1-15), after which it is

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cured with heat (see the examples). The wood is made flame retardant, and the silicon material is fixed within the wood, and is not leachable (see Abstract).

14. Claims 1-2 and 17-18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Cuthbert et al (5073195).

'195 teaches applying an alkyltrialkoxysilane to wood to make it water repellent (5:42-6:42)

15. Claims 1-2, 17, 19 and 27 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ogiso et al.

Ogiso teaches applying alkoxysilanes to wood using ultrasound, giving fire and termite resistance to the wood (see Abstract).

16. Claims 1, 17 and 19 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Myers (3682675).

'675 teaches impregnating wood in a borax solution, with ultrasound being used (see Abstract; 2:44-3:9).

*Claim Rejections - 35 USC § 103*

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saka et al , Wood Sci. Technol., 31(6), pp 457-466, 1997.

Saka is applied here for the reasons given above.

Saka does not teach the concentration of agents in the wood, but it would have been obvious to one of ordinary skill in the art to have optimized this through no more than routine experimentation, because the concentration of fire resistant agents is known to be an important parameter to control when fire-proofing a material such as wood.

19. Claims 20, 40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saka et al (5652026).

'026 is applied here for the reasons given above.

'026 fails to teach % Si, % acid or acid as described in Claim 42.

It would have been obvious to one of ordinary skill in the art to have optimized known important parameters such as the % of each ingredient., because the amount of the treating materials is known to affect the properties of the wood after the wood is treated.

'026 teaches that an organometallic compound can be used as catalyst (5:1-15). This would be inclusive of the formula of Claim 42.

20. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cuthbert et al (95073195).

'195 is applied here for the reasons given above.

'195 does not teach the concentration of agent in the wood, but it would have been obvious to one of ordinary skill in the art to have optimized this through no more than routine experimentation, because the concentration of agent is known to be an important parameter to control when treating a material such as wood.

21. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ogiso et al.

Ogiso is applied here for the reasons given above.

Ogiso does not teach the concentration of alkoxysilane in the wood, but it would have been obvious to one of ordinary skill in the art to have optimized this through no more than routine experimentation, because the concentration of the agent is known to be an important parameter to control when treating a material such as wood.

22. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Myers (3682675).

'675 is applied here for the reasons given above.

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'675 does not teach the concentration of borax in the wood, but it would have been obvious to one of ordinary skill in the art to have optimized this through no more than routine experimentation, because the concentration of the agent is known to be an important parameter to control when treating a material such as wood.

*Conclusion*

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erma C. Cameron whose telephone number is 703-308-2330. The examiner can normally be reached on 8:30-6:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-872-9475 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



**ERMA CAMERON**  
**PRIMARY EXAMINER**

Erma C. Cameron  
Primary Examiner  
Art Unit 1762

October 8, 2001.